

B·A·R·G NEWS

APRIL 1990



© **Monthly Newsletter of the
Ballarat Amateur Radio Group**

REGISTERED BY AUSTRALIA POST, PUBLICATION NO. VBH3397

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	Phil Seddon	VK3AQM	412234	
	Maurie Batt	VK3XEX	422245	
	Ian Robinson	VK3BTX	358031	
	Murray Felstead	VK3AAI	412234	
NEWSLETTER EDITORS	Bob Terrill	VK3BNC	395317	391001
	Harry Hekkema	VK3KGL	357563	391001

PEPEATERS: VK3RBA - 146.750 Voice. Mt. Buninyong. (Ch.3)
 VK3RBS - 146.900 Voice. Smeaton Hill. (Ch.6)
 VK3RPC - 147.575 Packet. Mt. Buninyong.

CLUB NET : On 3.610 Mhz. SSB +/- QRM.
 Every Thursday at 8 PM.

MEETINGS : Held every last Friday of
 month at 7.30 PM. in the
 Ballarat Community Education Centre.
 Hopetoun St.
 Ballarat.

Chat-n-Chew
 Coffee Lounge
 14 Doveton St. Nth. Ballarat
 Ph 053 317303

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32 6694

MINUTES OF GENERAL MEETING HELD 30th MARCH 1990

MEETING OPENED by President Gordon VK3 KGC at 7.50pm with 24 members and visitors Ron PRJ and Terry Haywood in attendance.

APOLOGIES VK3 XEX, DKJ, DS, BNC, XOA, PAP, TOM, NNC, SE, NIZ, KUA, DET.

MINUTES of previous meeting were read and confirmed. KAW/KAY.

CORRESPONDENCE Letter of thanks from Ballarat Courier enclosing donation of \$75.00 for assisting in Begonia Fun Run.

TREASURERS REPORT General a/c \$1285.90 VS&L a/c \$1424.90.
P.O.Box a/c \$30 passed for payment. KGL/CCB.

EDUCATION Ian AXH reported that the course is proceeding well with 10 students participating.

CLUB NET John CFH reported that the net is still going well.

TECHNICAL. The new repeater is now operating on Mt. Buninyong but at reduced power until the new power supply is installed.
The 432meg Beacon is off air temporarily.

REPORTS Moved AAP seconded ASU that reports be received. carried.

GENERAL BUSINESS.

Moved AXH seconded CAZ that donation from Courier be forwarded as donation to WICEN. carried.

Please support the 2mtr scramble held on the sunday following the meeting. Listen at 7.45 on RBA for details.

Bud AAP thanked Stan SE, Charlie KAY and Ken PUA for thier help in erecting a Yagi Beam for him.

Ron XOA has heavy duty co-ax available at \$2.50 per metre.

MEETING CLOSED at 8.35pm and after a coffee break Ian AXH and Merv KAW demonstrated how to make circuit boards.

#####

73s Jim CFB.

NEXT BARG MEETING Friday April 27th. 7.30pm at Education Centre.

#####

FOR SALE

TH6 Thunderbird Triband Yagi, with handbook. \$800. Phone John CJH on 44 7414 evenings or week ends.

Heard some new callsigns on air..... Paul - VK3TI (PSD),
Charlie - VK3DCS (KAY), KEN - VK3ATA (KUA) any others?????
Congratulations to ALL.

EDITOR.

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F O R S A L E
=====

VK2CLM - Leo

Low Pass Filter - 500 W. - 12 section - USA made - \$20

BELCO AC bridge - Capacitance - Inductance - Resistance - \$25

Grid Dip Meter - Leader - Mod LDM-815 - in wooden case - \$25

FREQ. Counter - D.S.I. - 50-500 Mhz. - \$95

Wishboard 104-1 - experimenters board in wooden case with extra's \$15

S.W.R. / F.S Meter - Tandy - \$35

UHF/VHF Down converter - Archer - (For use with computers) \$25

Digital Multimeter - Dick Smith - Mod Q 1528
(see page 81, 1989/90 CAT.) \$110

Power Supply - Dick Smith - CB 13.8 V - 4 Amp - \$30

S.W.R./Power Meter - Oskerblick - \$50

AM CB Rig - Dick Smith - \$40

Tokyo - HI POWER - LABS - Universal Antenna Coupler
500 W. - 3-30 Mhz. - Base station use - \$110

For details contact Bob - VK3BNC
Phone (053) 395317 A.H.
or 391001 B.H.

Technical Articles Always Needed

April	10.7 cm Flux	Sunspot No	A-Index
1	172	126	A-3
2	159	112	A-7
3	153	106	A-15
4	151	104	A-7
5	150	103	A-7
6	156	109	A-7
7	149	102	A-7
8	155	108	A-7
9	151	104	A-7
10	144	98	A-27 (dx) Aurora
11	147	101	A-140
12	159	112	A-48 (dx)
13	165	119	A-48 (dx)
14	196	151	A-48
15	211	167	A-27
16	218	174	A-15 (dx)
17	232	188	A-7
18	240	196	A-15

An A-index of at least 30, are indications that a Geomagnetic solar storm is in progress and an Aurora likely. Aurora generally absorbs radio signals below 20 Mhz, while those above 20 Mhz are scattered and reflected. A-index reports can be heard on WWV at 18 minutes after each hour.

* * * * *

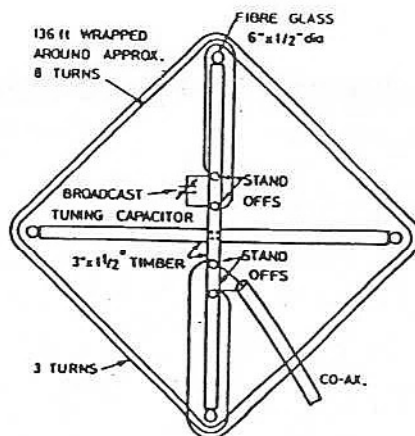
160 METRE ANTENNA.

Reprinted from South Australian Wireless Institute Journal October 1972.

The antenna to be described has shown improved results over the various dipoles and long wires that had been used in the past. Compared with the other antennae, this one shows a couple of "S" points more.

I have been able to copy K4SGU at 559, and VKSDV's signal, which was not so strong here at Balaklava, is now up another couple of "S" points.

The antenna is basically a one element yagi with a tuned winding and a low impedance link. To construct the antenna you will need 2 pieces of timber 6" x 3" x 1 1/2" to form the cross, 136 ft. of 20-22 s.w.g. enamel wire to form the main tuned winding, and enough 20-22 s.w.g. enamel wire to wind on three turns to form the link. Four pieces of glass fibre rod, about 1/2" diameter and 6" long from an old fishing rod, four small stand off insulators to terminate the ends of the wire and a single gang



160 METRE ANTENNA

broadcast type capacitor (mounted as close as possible to the stand off insulators) are also needed.

The construction of the antenna is as follows. Screw the two pieces of timber together to form a cross, and across the ends of the timber screw the four pieces of fibre glass rod. Attach one end of the 136 ft. length of wire to an insulator, these insulators having first been mounted in pairs as shown in the diagram. Wind on all the wire and attach the end to the adjacent insulator. This will be about eight turns. Now wind on the three turns, attaching the ends to the other set of insulators.

Mount the single gang condenser to the boom as close as possible to the stand-offs that are connected to the 136 ft. length of wire, and connect to the ends. Attach 70 or 50 ohm co-ax to the ends of the three turn link and the antenna is ready.

The final step is to peak the capacitor for maximum signal strength and the antenna is then complete.

DON'T FORGET our SUPER JUNK SALE next MAY meeting!! Bring along all your junk you won't want anymore and George (DOK) will auction it for you. Also I would like more Newsletter articles, as my supply has completely dried up, and with a couple of pages NO Newsletter will be produced. Don't always leave it up to the same contributors!! Have a go yourself. Tell us about your antenna you build and would't work and why it worked very good after you modified it. Tell us about your latest homebrew piece of gear and show circuit diagram etc. If you have different views on club nights, this is a good place to air them!! Know of any interesting club outings?? TELL US!!! Done some modifications on radio equipment?? Share it with others via this media!! I hear you say "have'nt got a typewriter to write articles?". NO WORRIES! Just do it in handwriting, we will do it again! What about all our associated members outside Ballarat??

Editor.

These questions are provided as an informative exercise into your knowledge of subjects concerned with Amateur Radio.

The sources of the questions are books available to most operators and are such publication as:

ARRL Handbook

Radio Communication Handbook RSGB

I will try and keep the questions and subjects as general as possible so that other sources should be able to provide suitable answers.

The subject for this month is PROPAGATION and the IONOSPHERE.

Question 1.

The ionosphere is made up of a number of layers, the lowest layer is the D layer approximately 70 to 88 kms above the earth's surface.

During daylight hours its influence on radio signals is different to the other layers.

What is the difference between the D layer and the others during the daytime?

Question 2.

Name the other layers present during daylight hours?

Question 3.

Two layers combine during nighttime hours, what are they?

Question 4.

What is the action of these two layers upon a radio signal?

- | | |
|---------------|-----------------|
| a) Reflection | c) Refraction |
| b) Absorption | d) Transmission |

Question 5.

One of the layers is Sporadic, what is its name and on what part of the frequency spectrum does it have major influence? (ie. Above or below what frequency.)

Question 6.

What do the abbreviations MUF and LUF stand for?

Question 7.

The ionosphere occurs in the atmosphere because of what type of radiation from the sun?

Question 8.

What layer dictates the LUF over a given path?

Question 9.

With sun in a state of high sunspot activity at the moment, what effect does this have on the MUF of long distance communication?

Question 10.

What is the average time in years between these periods of high solar activity.

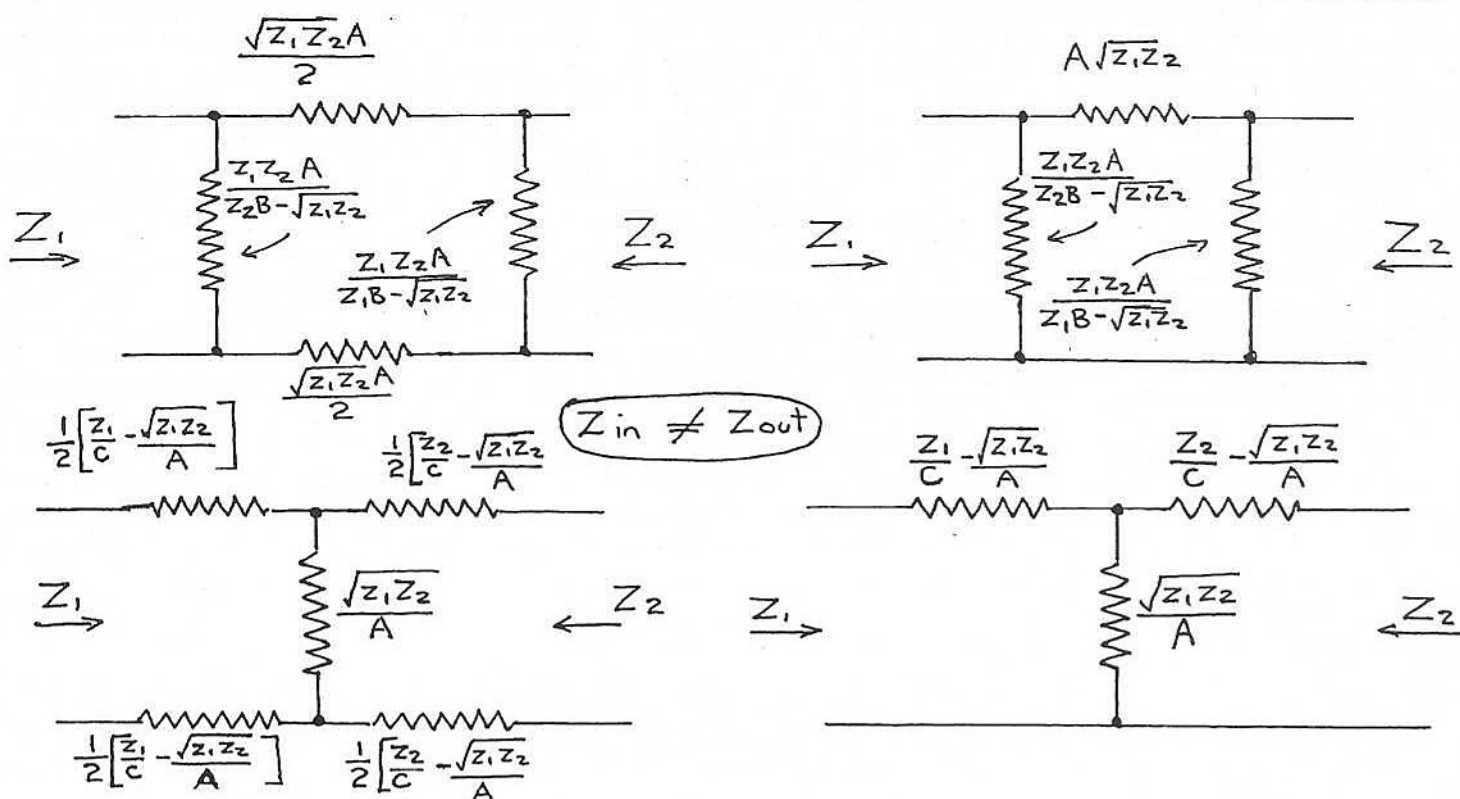
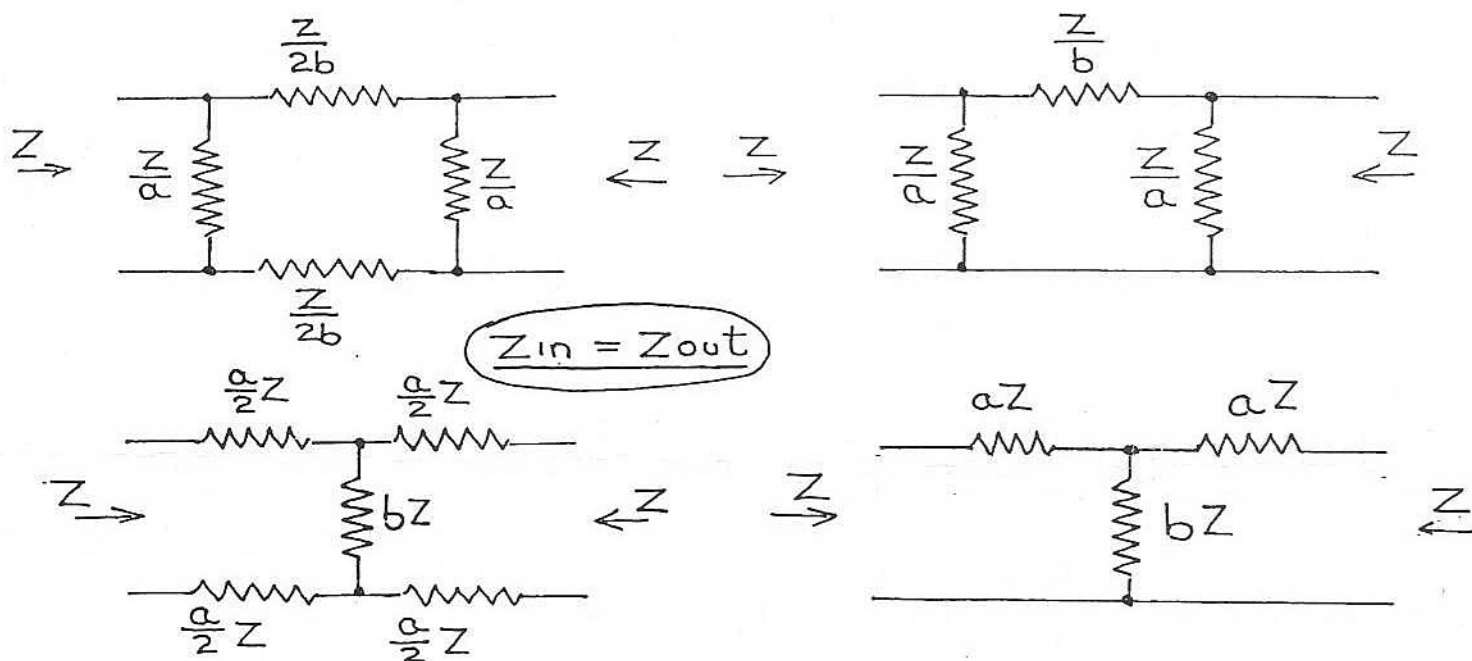
Answers in next months edition.

If anybody has any suggestions on topics and information sources for this column, feel free to let me know..

RESISTIVE PADS

Those of us who don't have a computer and a suitable programme find it a difficult and tedious task to calculate the awkward values often needed for an attenuator pad especially when it is required to also act as a match between different impedances. Using the attached table and a calculator or even a set of log tables makes it a lot easier.

One point to remember is that when calculating pads for differing impedances there is a certain minimum loss value for such pads since some of the resistors would have to be of negative value if the loss in the pad were to be below a certain minimum value. For example if the impedance ratio of a pad is to be 3.018 then its loss must be at least 10 dB. The maximum impedance ratios are also given in the table.



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	Loss dB	A	B	C	a	b	$\frac{1}{b}$	$\frac{1}{a}$	$\frac{1}{2b}$	Max Ratio $Z_1:Z_2$ $Z_2:Z_1$	
	1	0.1154	1.007	0.1150	0.0575	8.664	0.1154	17.39	0.0577	1.014	
	2	0.2323	1.027	0.2263	0.1146	4.305	0.2323	8.724	0.1161	1.055	
	3	0.3523	1.060	0.3325	0.1710	2.838	0.3523	5.848	0.1761	1.124	
	4	0.4770	1.108	0.4305	0.2263	2.097	0.4770	4.419	0.2385	1.228	
	5	0.6084	1.170	0.5192	0.2801	1.645	0.6084	3.570	0.3042	1.369	
	6	0.7472	1.248	0.5986	0.3323	1.339	0.7472	3.009	0.3736	1.557	
	7	0.8960	1.343	0.6673	0.3825	1.116	0.8960	2.615	0.4480	1.804	
	8	1.0570	1.455	0.7264	0.4305	0.9462	1.0570	2.323	0.5285	2.117	
	9	1.2320	1.586	0.7763	0.4762	0.8118	1.2320	2.100	0.6160	2.515	
	10	1.4218	1.738	0.8181	0.5195	0.7027	1.4218	1.925	0.7109	3.018	
	11	1.6324	1.914	0.8527	0.5601	0.6127	1.6324	1.785	0.8162	3.663	
	12	1.8659	2.117	0.8814	0.5986	0.5359	1.8659	1.670	0.9329	4.482	
	13	2.1223	2.346	0.9046	0.6343	0.4712	2.1223	1.576	1.0611	5.504	
	14	2.4067	2.605	0.9235	0.6672	0.4155	2.4067	1.498	1.2033	6.786	
	15	2.7230	2.901	0.9387	0.6981	0.3672	2.7230	1.432	1.3615	8.415	
	20	4.9522	5.052	0.9802	0.8182	0.2020	4.9522	1.222	2.4761	25.52	
	25	8.8612	8.918	0.9940	0.8932	0.1128	8.8612	1.119	4.4306	79.52	
	30	15.80	15.830	0.9980	0.9387	0.06331	15.800	1.065	7.900	250.5	
	35	28.094	28.112	0.9994	0.9649	0.0356	28.094	1.036	14.047	790.2	
	40	50.000	50.0094	0.9998	0.9802	0.020	50.00	1.020	25.00	2500	
	45	88.928	88.933	0.9999	0.9888	0.01124	88.928	1.011	44.464	7909	
	50	158.1	158.102	1.000	0.9937	0.006325	158.1	1.006	79.05	24980	
	60	500	500	1.000	0.9980	0.002	500	1.002	250		
	70	1581	1581	1.000	0.9994	0.000632	1581	1.001	790		
	80	5000	5000	1.000	0.9998	0.0002	5000	1.000	2500		
	90	15810	15810	1.000	0.9999	0.0000632	15810	1.000	7905		
	100	50000	50000	1.000	1.000	0.00002	50000	1.000	25000		

Of course you can always feed the data into your "mechanical idiot" and let it do the "sums" if you want. It will be quicker I suppose and a lot less wearing on the brain.

73 de Reg VK3CAZ

DX and BAND reports.....

Could club members send in any special stations worked or heard on the bands to me, so that I may type up a list for inclusion in the club magazine.

Any QSL (postal) information would be of great interest and value to members, as would be information on DXpeditions and special events.

So please send in any interesting QSO and QSL information, as other members would like to share in your experiences.

I would like to start with some of my contacts over the last couple of months, all of which I may add were mobile. The equipment being an IC 735 and a stainless steel whip mounted on the bullbar.

Many U.S.A. stations were worked, which includes Hawaii and Alaska. One station WØZX/KL7 from ADAK Island was a healthy 5/9+ on 28MHz, also a large number of JA's were worked, some QSO's lasting 30 or 40 KLM's (half hour or so).

Some of the stations that I have worked were...

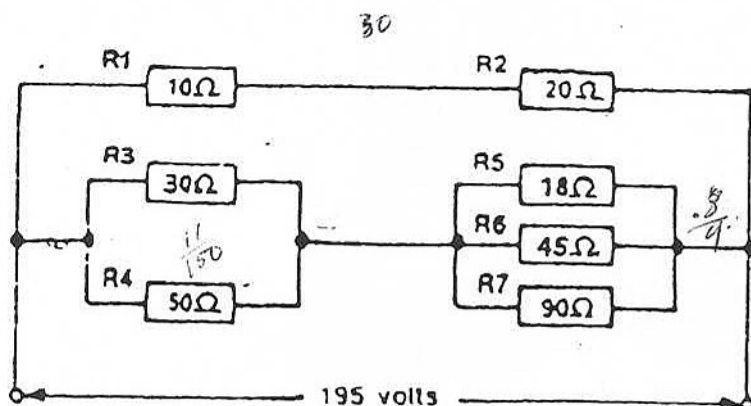
UA, ZL, W, JA, HL, G & VE's. A large number of these were worked several times over the two months.

Others worked were...

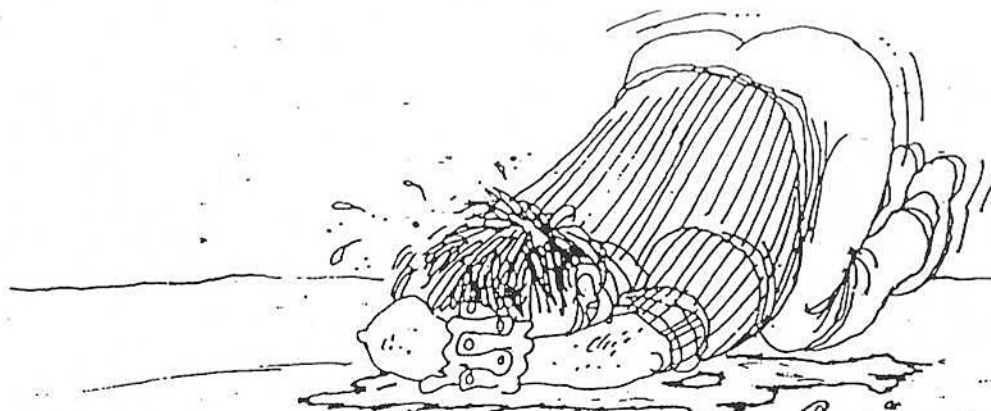
SP9EIJ/3A	MONACO
I4WZT	ITALY
YU3SAU/M	YUGOSLAVIA
V85JB	BRUNEI
CT1CGX	PORTUGAL
ZS6BBP	SOUTH AFRICA
T3ØJH	TARAWA ATOLL
FK8GJ	NEW CALEDONIA
4K4BAN	RUSSIAN ARCTIC.
LZ1KOZ	BULGARIA.
PAØAGA	NETHERLANDS.
SM600I	SWEDEN.
FM5WD	MARTINIQUE.

Good DX and hope to have more info as it comes to hand next month.

VK3CCB CLIFF.



What is combined RESISTANCE?
What is VOLTAGE accross R3 ?
What is CURRENT thru R4 ?



I AM STILL WAITING
FOR THOSE PROJECTS. (THE EDITOR)

MODS FOR ICOM IC02A HANDHELD

STEP 1 CPU BOARD CUT DIODES MARKED WITH X

1			1	
1		1	1	1
1 X		1 CPU1	1	
1 X	+ONLY			1
1 X				1

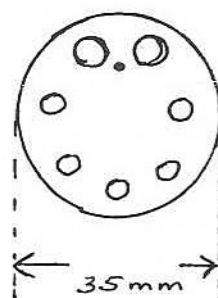
STEP 2 PLL UNIT

- 1 REMOVE R 225 6.8K
- 2 6.8K FROM THE BASE OF Q207 TO EARTH
- 3 TUNE THE VCO CORE TO COVER 140-163MHZ AND HIGHER!!!

FOR HIGHER FREQ AUDIO REMOVE C 117 0.22MF

WANTED

SOCKETS FOR 1625 VALVE
(6 OFF)



CLEM - VK3CYD
P.O. Box 285

NEWBOROUGH. 3825
PH. (051) 274248 A.H.

This is the world's most powerful shortwave transmitter.

This compact, single tube amplifier, located in the EIMAC facility, develops over 1300 kilowatts of 100% modulated carrier. It is quickly and easily tunable over the range of 15 to 30 MHz. Drive power at the grid of the tube is less than 5 kilowatts.

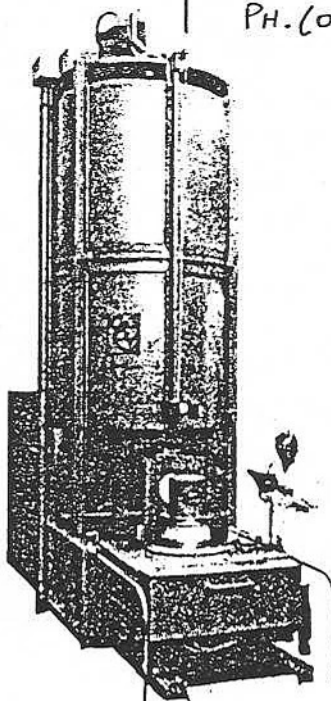
Using a single EIMAC X-2159 super-power tetrode in a Continental Electronics transmission line-cavity configuration, this amplifier combines high power gain with excellent operating stability and complete freedom from circuit parasitics.

A single amplifier stage using two EIMAC X-2159 tubes is capable of over 2.5 megawatts of 100% modulated

carrier. Two amplifiers combined would make a 5 megawatt transmitter a practical reality.

The EIMAC X-2159 super-power tetrode is designed for MF and HF broadcast service, VLF communications, SSB linear service and extremely high power pulse modulator applications.

The X-2159 is another example of tomorrow's tube that's ready today at EIMAC. For complete information, contact EIMAC Division of Varian, 301 Industrial Way, San Carlos, California 94070. Or any of the more than 30 Varian/EIMAC Electron Tube and Device Group Sales Offices throughout the world.



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VALVE LINEAR AMPLIFIER

If you want to get "LONGER" life out of your tetrode linear amplifier tubes then connect a 0 - 50 mA meter in the screen grid supply lead. When tuning the plate and load tune for maximum screen current in conjunction with plate current dip. Refer to tube rating for maximum screen and plate currents. This tuning method will give very accurate tuning of the P.A. stage into the antenna load and prolongs the life of the tubes

Stan - VK3SE.

FOR SALE

1 - TH3JR Triband beam ANTENNA. \$125.00

Stan - VK3SE - Ph.(053)323340.

FOR SALE

=====

ICOM IC-28A 2m FM transceiver.
20 memory - 25 Watts.
New condition - Less than 6 month old.
Still under warranty - \$475 o.n.o.

COBRA SR15 Hand/Held Scanner
100 channel memory
Freq. Range 28 Mhz - 512 Mhz.
\$280 o.n.o.

Ernie VK3DET - Ph.(053) 317604 A.H.

WANTED TO BUY

=====

TOWER.

Ernie VK3DET - Ph.(053) 317604 A.H.

12

Williams Studios

42 Sturt Street,
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WEDDING / PORTRAITURE / COMMERCIAL

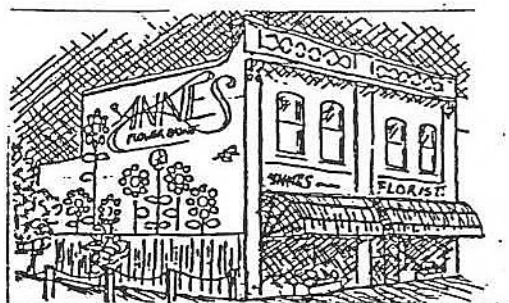
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